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**THE
ONTARIO WATER RESOURCES
COMMISSION**

A. M. SNIDER, Chairman
~~W. H. C. BRIEN, Q.C.~~
W. D. CONKLIN, Q.C.
R. M. SIMPSON
JAMES A. VANCE

SUBJECT: Second
ANNUAL REPORT
1957

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ONTARIO WATER RESOURCES COMMISSION

A. M. SNIDER, CHAIRMAN
V. D. CONKLIN, Q.C.
L. M. SIMPSON
AMES A. VANCE
R. A. E. BERRY
GENERAL MANAGER
RIAN LARMOUR
SECRETARY

EAST BLOCK
PARLIAMENT BUILDINGS
TORONTO

March 3, 1958

A.M. Snider, Esq.,
Chairman,
Ontario Water Resources Commission,
East Block, Parliament Buildings,
Toronto, Ontario

Dear Sir,

It is with pleasure that I present to you
and the other Commissioners of the Ontario Water
Resources Commission this, the second Annual
Report of the Commission.

Yours sincerely,

General Manager and Chief Engineer.



March 3, 1958.

To the Honorable William Griesinger, M.C., V.D., LL.D.,
Minister of Public Works

Sir,-- I have the honor to submit for your approval the
Second Annual Report of the Ontario Water Resources
Commission, made in conformity with and under provisions
of The Ontario Water Resources Commission Act, 1957.

I have the honor to be, Sir,

Your obedient servant,

Chairman

SECOND ANNUAL REPORT

ONTARIO WATER RESOURCES COMMISSION

- 1957 -

This second annual report of the Ontario Water Resources Commission deals with activities in the year 1957. It includes changes in legislation and the assumption of wider activities resulting therefrom as well as comments on the various phases of the Commission's program.

This period was a particularly active one. It brought an augmented staff to cope with new work, the development of new procedures, the inauguration of construction programs, and the transfer of activities from other departments of government to the Commission. Emphasis was placed on two major objectives, namely, the development of water supply for municipalities and areas where this need existed, and secondly the control of pollution in the various watercourses.

Organizational problems are to be expected when a new program is developing at a rapid rate. Difficulties had to be overcome, in respect to the preparation of procedures required to carry out these activities.

Gratifying progress was made during the year and an important start was made on many parts of the full program envisioned by the Commission to meet its objectives. This was the foundation from which will emerge the work of future years.

Ontario Water Resources Commission

It will be recalled that the Committee on Water Resources and Supply appointed by the government in May 1955 was changed to a Commission under Bill 198, an Act to establish a Water Resources Commission which came into effect on March 28th, 1956. Five members were appointed to the Commission--A.M. Snider, Chairman, and Messrs. W.H.C. Brien, W.D. Conklin Jr., R.M. Simpson and J.A. Vance. All members with the exception of Mr. Brien, who died in October, served throughout the year 1957. His death was a great loss.

The Amended Legislation

At the 1957 Session of the Ontario Legislature the former Act of 1956 was replaced by Bill No. 164 entitled, The Ontario Water Resources Commission Act, 1957. This widened greatly the scope of the Commission's program and set out procedures. It transferred from The Public Health Act a number of sections pertaining to water and sewage works. It also transferred from the Department

of Mines the supervision over well drilling operations. Emphasis was given to construction of water and sewage projects for municipalities, and new authority was given to control pollution of waterways as a means of conserving and developing the water resources of the Province. This Legislation came into effect on April 3rd, 1957.

Organization and Administration

The program of the Commission was developed within the organization framework shown in the accompanying diagram. In this, five major divisions are shown as: Laboratory and Research, Construction, Sanitary Engineering, Plant Operation, and Water Resources. The head of each of these is a Director. These divisions are further subdivided into branches under supervisors and other personnel. The staff was increased as trained personnel became available to fill the various positions. At the end of the year the total number on the staff was 82. Members of the staff were housed in several buildings including the East Block of the Parliament Buildings where headquarter offices were situated, 67 College Street, 30 Grosvenor Street, and 807 Richmond Street West where laboratory facilities were located. These facilities proved restrictive to the work of the Division of Laboratories and Research. However, a major step forward was taken when contracts were awarded near the end of the year for the construction of a new laboratory building on Highway 401 west of the Humber River. This laboratory will be a modern one with enlarged space for carrying out the many tests on water, sewage and industrial wastes as well as research studies. It is expected that this new building will require about one year for completion.

In the meantime the restricted laboratory facilities and difficulty of obtaining trained personnel in the sanitary engineering field had an adverse effect on the Commission's programs, particularly the one concerning stream pollution abatement.

Activities of the Various Branches

The year's detailed activities of the Commission is shown in a review of the work of the divisions and branches. Part of these activities will be for nine months of the year only since the new legislation and transfer of activities from other departments did not take place until April.

WATER AND SEWERAGE APPROVALS

The Public Health Act formerly required the approval of the Ontario Department of Health for all water and sewage works to be constructed in the Province. This activity

was transferred to the Water Resources Commission starting when the Act came into being in April. Appended to this report is a list of the certificates issued by the Commission during the year. It was necessary to reconsider those approvals given by the Department of Health where the municipalities had not acted upon them. As a result of this there was a substantial number of renewal certificates issued. Most of these were issued during the first few months after this change in legislation.

Here is a summary of the certificates issued and their estimated value--

Water works,	566 certificates,	\$25,969,290.90
Sewage works,	733 certificates,	\$60,886,333.40
Total	1,299 certificates,	\$86,855,624.30

In these totals, 118 certificates for water estimated at \$5,958,370.52 were renewals, and for sewage works the renewals total was 166 certificates and \$15,486,164.72 expenditures.

Certificates issued by the Department of Health for the first three months of 1957 included:

Water works	143 certificates,	\$8,717,601.17
Sewage works,	190 certificates,	\$11,704,452.28
Total	333 certificates,	\$20,422,053.45

Totals for the year issued by the Department of Health and the Commission (omitting renewals) were:

Water works	591 certificates,	\$28,728,521.55
Sewage works	757 certificates,	\$57,104,620.96
Total	1,348 certificates,	\$85,833,142.51

These figures may be compared with those issued by the Department of Health for 1956, when the total for water was 697 certificates expenditure of \$33,345,430.96 and for sewage works 890 certificates and expenditure of \$68,899,652.28 making a total of 1,587 certificates and \$102,245,083.24.

It will be seen that the overall expenditure for the year was less than the previous one. This was to be expected since the growth involved in sub-divisions was retarded towards the end of the year. This decrease was also influenced by a new policy adopted by the Commission whereby approvals of extensions for sewers were withheld until satisfactory programs for sewage treatment were developed. This was a move to prevent further stream pollution.

(Appendix I lists the Certificates of Approval issued.)

CONSTRUCTION PROGRAM

The Commission's construction program is based on agreements with municipalities concerned either with water works or sewage works. When an agreement is signed for a project the Commission engages consulting engineers to prepare plans and specifications. When tenders are called and contracts let the Construction Division maintains supervision over the work until it is completed.

The Commission appointed Allan Shattuck, professional engineer, as Director of Construction, to take charge of supervising works during the construction period. Mr. Shattuck's report is as follows:-

Report of the Director of Construction Allan Shattuck

In July construction was commenced on Commission projects at Stratford, Port Perry, Havelock, and Toronto Township. In August a Director of Construction was appointed. While contracts with consulting engineers provide for design and complete supervision of Commission projects, it is the duty of the Construction Branch to see that the Commission is obtaining adequate supervision, and to protect the Commission's interests in the matter of expenditures not provided for in the contracts.

Since all consulting engineering firms use somewhat different general conditions and report forms one of the first projects of this Division was to draw up a set of general conditions for use by all engineering firms on Commission projects. These conditions greatly simplified the work of the Commission's accounting office in that the issuing of the progress and final certificates and extra work orders were standardized. Similarly, report forms were standardized. As the number of Commission projects increased it was necessary to increase the staff of the Construction Division by the addition of two full-time engineers besides the Director. It became established policy to make a minimum of two inspections of each job per month. In the case of larger projects where several contracts are involved more inspections are made.

A standard form of agreement between the Commission and consulting engineers was drawn up and generally met with the approval of consulting engineers. This agreement form was essentially in accord with the agreement proposed by the Association of Professional Engineers of Ontario but with certain changes to meet Commission requirements.

A brief summary of the status of all Commission jobs under construction at the year-end follows.

(1) Port Perry

In complete operation before the year-end, the Port Perry water system was the first project of the Commission to reach completion. Work started in July. Costing approximately \$62,000, the new Port Perry system consists of a well, pump and 8" main which was connected to the town's existing distribution system.

(2) Stratford

Construction of an extension to the activated sludge sewage treatment plant so as to provide complete treatment and including screening, grit removal, primary settling, aeration, final settling and sludge digestion.

This project is intended to overcome pollution in the Avon River. The existing treatment works served the city for many years, but had become inadequate for present sewage flows.

Work progressed favorably and at the year-end it was expected the plant would be put into operation six weeks or so before the completion date named in the contract.

(3) Dresden

Construction of a low lift pumping station to draw water from the Sydenham River, an intake, a treatment plant and an addition to the filter plant.

The town of Dresden had experienced shortage of water from wells. This was critical during the summer and fall and prevented industrial growth. Consideration was given to the construction of a pipe line from Wallaceburg, but because of the cost in comparison with the quality of water required this was not regarded as feasible. Recourse was then had to water from the river at Dresden, and the completion date set for April 1958.

(4) Harrow

For many years the village of Harrow had endeavored to build a water works system. Attempts to get water from local wells were unsuccessful. Water was needed both for domestic consumption and for industry. The cost of bringing water from the lake was high. An agreement was made with the Commission to build a supply and distribution system. It consisted of a low lift pumping station on the shore of Lake Erie at Colchester with provision for micro straining and chlorination, three miles of 12-inch cast iron supply main into Harrow and a distribution system in the town. Altogether over 10 miles of water mains are involved.

1900

1907. 1911. 1915. 1919. 1923. 1927. 1931. 1935. 1939. 1943. 1947. 1951. 1955. 1959. 1963. 1967. 1971. 1975. 1979. 1983. 1987. 1991. 1995. 1999. 2003. 2007. 2011. 2015. 2019. 2023. 2027. 2031. 2035. 2039. 2043. 2047. 2051. 2055. 2059. 2063. 2067. 2071. 2075. 2079. 2083. 2087. 2091. 2095. 2099. 2103. 2107. 2111. 2115. 2119. 2123. 2127. 2131. 2135. 2139. 2143. 2147. 2151. 2155. 2159. 2163. 2167. 2171. 2175. 2179. 2183. 2187. 2191. 2195. 2199. 2203. 2207. 2211. 2215. 2219. 2223. 2227. 2231. 2235. 2239. 2243. 2247. 2251. 2255. 2259. 2263. 2267. 2271. 2275. 2279. 2283. 2287. 2291. 2295. 2299. 2303. 2307. 2311. 2315. 2319. 2323. 2327. 2331. 2335. 2339. 2343. 2347. 2351. 2355. 2359. 2363. 2367. 2371. 2375. 2379. 2383. 2387. 2391. 2395. 2399. 2403. 2407. 2411. 2415. 2419. 2423. 2427. 2431. 2435. 2439. 2443. 2447. 2451. 2455. 2459. 2463. 2467. 2471. 2475. 2479. 2483. 2487. 2491. 2495. 2499. 2503. 2507. 2511. 2515. 2519. 2523. 2527. 2531. 2535. 2539. 2543. 2547. 2551. 2555. 2559. 2563. 2567. 2571. 2575. 2579. 2583. 2587. 2591. 2595. 2599. 2603. 2607. 2611. 2615. 2619. 2623. 2627. 2631. 2635. 2639. 2643. 2647. 2651. 2655. 2659. 2663. 2667. 2671. 2675. 2679. 2683. 2687. 2691. 2695. 2699. 2703. 2707. 2711. 2715. 2719. 2723. 2727. 2731. 2735. 2739. 2743. 2747. 2751. 2755. 2759. 2763. 2767. 2771. 2775. 2779. 2783. 2787. 2791. 2795. 2799. 2803. 2807. 2811. 2815. 2819. 2823. 2827. 2831. 2835. 2839. 2843. 2847. 2851. 2855. 2859. 2863. 2867. 2871. 2875. 2879. 2883. 2887. 2891. 2895. 2899. 2903. 2907. 2911. 2915. 2919. 2923. 2927. 2931. 2935. 2939. 2943. 2947. 2951. 2955. 2959. 2963. 2967. 2971. 2975. 2979. 2983. 2987. 2991. 2995. 2999. 3003. 3007. 3011. 3015. 3019. 3023. 3027. 3031. 3035. 3039. 3043. 3047. 3051. 3055. 3059. 3063. 3067. 3071. 3075. 3079. 3083. 3087. 3091. 3095. 3099. 3103. 3107. 3111. 3115. 3119. 3123. 3127. 3131. 3135. 3139. 3143. 3147. 3151. 3155. 3159. 3163. 3167. 3171. 3175. 3179. 3183. 3187. 3191. 3195. 3199. 3203. 3207. 3211. 3215. 3219. 3223. 3227. 3231. 3235. 3239. 3243. 3247. 3251. 3255. 3259. 3263. 3267. 3271. 3275. 3279. 3283. 3287. 3291. 3295. 3299. 3303. 3307. 3311. 3315. 3319. 3323. 3327. 3331. 3335. 3339. 3343. 3347. 3351. 3355. 3359. 3363. 3367. 3371. 3375. 3379. 3383. 3387. 3391. 3395. 3399. 3403. 3407. 3411. 3415. 3419. 3423. 3427. 3431. 3435. 3439. 3443. 3447. 3451. 3455. 3459. 3463. 3467. 3471. 3475. 3479. 3483. 3487. 3491. 3495. 3499. 3503. 3507. 3511. 3515. 3519. 3523. 3527. 3531. 3535. 3539. 3543. 3547. 3551. 3555. 3559. 3563. 3567. 3571. 3575. 3579. 3583. 3587. 3591. 3595. 3599. 3603. 3607. 3611. 3615. 3619. 3623. 3627. 3631. 3635. 3639. 3643. 3647. 3651. 3655. 3659. 3663. 3667. 3671. 3675. 3679. 3683. 3687. 3691. 3695. 3699. 3703. 3707. 3711. 3715. 3719. 3723. 3727. 3731. 3735. 3739. 3743. 3747. 3751. 3755. 3759. 3763. 3767. 3771. 3775. 3779. 3783. 3787. 3791. 3795. 3799. 3803. 3807. 3811. 3815. 3819. 3823. 3827. 3831. 3835. 3839. 3843. 3847. 3851. 3855. 3859. 3863. 3867. 3871. 3875. 3879. 3883. 3887. 3891. 3895. 3899. 3903. 3907. 3911. 3915. 3919. 3923. 3927. 3931. 3935. 3939. 3943. 3947. 3951. 3955. 3959. 3963. 3967. 3971. 3975. 3979. 3983. 3987. 3991. 3995. 3999. 4003. 4007. 4011. 4015. 4019. 4023. 4027. 4031. 4035. 4039. 4043. 4047. 4051. 4055. 4059. 4063. 4067. 4071. 4075. 4079. 4083. 4087. 4091. 4095. 4099. 4103. 4107. 4111. 4115. 4119. 4123. 4127. 4131. 4135. 4139. 4143. 4147. 4151. 4155. 4159. 4163. 4167. 4171. 4175. 4179. 4183. 4187. 4191. 4195. 4199. 4203. 4207. 4211. 4215. 4219. 4223. 4227. 4231. 4235. 4239. 4243. 4247. 4251. 4255. 4259. 4263. 4267. 4271. 4275. 4279. 4283. 4287. 4291. 4295. 4299. 4303. 4307. 4311. 4315. 4319. 4323. 4327. 4331. 4335. 4339. 4343. 4347. 4351. 4355. 4359. 4363. 4367. 4371. 4375. 4379. 4383. 4387. 4391. 4395. 4399. 4403. 4407. 4411. 4415. 4419. 4423. 4427. 4431. 4435. 4439. 4443. 4447. 4451. 4455. 4459. 4463. 4467. 4471. 4475. 4479. 4483. 4487. 4491. 4495. 4499. 4503. 4507. 4511. 4515. 4519. 4523. 4527. 4531. 4535. 4539. 4543. 4547. 4551. 4555. 4559. 4563. 4567. 4571. 4575. 4579. 4583. 4587. 4591. 4595. 4599. 4603. 4607. 4611. 4615. 4619. 4623. 4627. 4631. 46

The supply main to Harrow had been constructed and two outfits were laying mains in the town at the year-end.

(5) Toronto Township

This project involves trunk sewers, sewage pumping facilities and a sewage treatment plant of the activated sludge type located at the lake front. This will serve a rapidly growing area.

The work was divided into several parts. Parts I and II involved the laying of 11,562 feet of sewer pipe ranging in size from 21 inches to 33 inches. This pipe was to be laid on the treatment plant site, from the treatment plant site to Highway No. 2 to Ogden Avenue and North on Ogden Avenue to the South Service Road of the Q.E. Way. The contract includes construction of manholes and appurtenances and service connections.

By the year-end the 24", 27" 30", and 33" concrete trunk sewer had been completed from the treatment plant site up to Fifth Street on Ogden Avenue. The 21" trunk north of Fifth Street had been laid to between Holiday and Delco. There remained 3,200 feet of 21-inch trunk to complete.

Part III. This contract involved the laying of 5,428 feet of 21" concrete sewer pipe along the South Service Road of the Q.E. Way, across the South Service Road, along the North Service Road of the Q.E. Way to First Line East and North on First Line East to the H.E.P.C. transmission line together with a crossing of the Q.E. Way with a connection to a pumping station.

On the South Service Road a 21" trunk sewer had been laid for a length of 600 feet out of a total of 1600 feet or 35% by the end of 1957. One shaft out of four for the two tunnels across the Q.E.W. had been started. On First Line East 1,000 feet of 21" pipe had been laid out of a total of 2,175 feet or 50%. The two tunnels across the Q.E. Way, and the part of the 21" line on the North Service Road from the extension of Northmount to First Line East had not been started except part of one shaft as noted above.

The contractor on Part III had completed about 40% of the total contract. On the South Service Road the contractor ran into difficult pipe-laying conditions.

Part IV. This contract involved the construction of 5,850 feet of 10" force main from the north end of the 21" sewer on First Line East, west along the Hydro Electric Power Commission right-of-way to the Cooksville sewage pumping station. About 65% of this line had been laid by year-end.

Part V This involved the construction of the pumping station adjacent to the H.E.P.C. right-of-way at Cooksville. All concrete work had been completed at the year-end and a start made on the super structure.

(6) Streetsville

This village had been operating a sewage treatment plant consisting of sedimentation and sand filtration with the effluent discharged to the Credit River. It became overloaded as the village expanded. An agreement was made with the Commission for construction of an activated sludge treatment plant with disinfection of the effluent to give a high degree of protection to the stream.

The official completion date on this contract is Nov. 11th, 1958, and work was well ahead of schedule at the year-end. All foundations had been poured, also the walls of the secondary clarifier and chlorine contact chamber.

(7) Richmond Hill

The rapid growth of Richmond Hill necessitated an expansion in the water works and sewerage systems. Water is obtained from wells. This project also includes an extension to the activated sludge sewage treatment plant to a capacity of 1.6 M.G.D. The effluent will discharge to a branch of the Don River.

(8) Brock Township (Sunderland)

This project comprised a deep well and pump house located beside the Beaver River just east of the village and a distribution system of 8-inch and 6-inch pipe approximately 14,000 lineal feet in length. The system was not designed to include an elevated storage tank or standpipe but pressure was to be supplied directly from the pump with a standby gasoline-driven engine provided.

By the end of the year the system had been satisfactorily tested, disinfected and flushed, and about 35 houses were using water. Additional services requested by the village and the final clean-up along the water main routes were to be completed in the spring of 1958.

(9) Havelock

This project comprised a deep well pump house located approximately in the centre of the village, a welded steel standpipe of 150,000 Imp. gallons capacity and approximately 27,500 lineal feet of 6" and 8" pipe. The electrically

driven deep well pump was to be automatically controlled by a switch actuated by the pressure variations in the system. Approximately 370 house connections were to be provided. The official commencement date of the contract was July 19th, 1957.

By the end of the year the pump house, the stand pipe and the main laying had been completed and 147 of the house-connections had been installed. The remaining house connections were being deferred until spring.

It was arranged that the tank and the distribution system would be disinfected and flushed and a hydrostatic pressure and leakage test carried out in early January before making the system operational.

(10) Bancroft

This water supply project consists of a 15" diameter intake in Clarke Lake to the northeast of the village, a valve chamber near the lake, a 12" diameter gravity supply main approximately 7,360 feet long, leading down the valley to Highway No. 62, a metering and chlorination building near the highway and a distribution system approximately 17,400 feet in length comprising 10", 8" and 6" diameter pipe. The construction of an outlet control works on the opposite side of Clarke Lake is included in the contract and about 300 service connections are to be installed in the village. The elevation of the lake is such that the whole distribution system will receive water under adequate head by gravity.

Official commencement date of the contract was September 23rd, 1957, with a contract period of 35 weeks giving the completion date as May 26th, 1958.

By the end of the year the contractor had laid about 1,200 feet of the 12" supply main and approximately 60% of the distribution mains in the village and 94 service connections. Work in the village was then discontinued for the winter but the laying of the supply main was to continue through January.

Appendix II lists the agreements completed with the Commission by the end of the year for water and sewage works projects.

WATER WORKS SYSTEMS

Public water works systems occupy an important position in services to urban dwellers. It is important that these utilities be made available to as many municipalities as possible and be extended to serve the maximum number of premises in any community where water works have been established. Supervision over the quality of the water

delivered to these distribution systems is a responsibility of the Commission. G.M. Galimbert, Supervisor of Water Works for the Commission, reports as follows:-

Report of the Supervisor of Water Works
G.M. Galimbert

The period from April 1st, 1957 to Jan. 1st, 1958, was an outstanding one in Ontario water works history. It marked the entry of the newly created Ontario Water Resources Commission as an active participant in the various phases of the water works industry in the Province.

Approval of Plans and Specifications

The plans and specifications for the construction of new water works systems and the extension of those in existence were submitted to the Commission for review and approval for the first time during this nine-month period. The change required in addition to the regular approval of new installations the replacement of many Department of Health certificates that were no longer valid. The check by the Commission provided complete knowledge of installations that were being made by all municipalities in the Province. An analysis of the 566 approval certificates issued for a total expenditure of \$25,969,290.00 shows extensions amounting to \$21,957,668.05, supply and purification works \$2,249,117.02, and new systems \$1,762,505.83.

Major Contribution will likely be Pipe Lines and New Systems

It was apparent that the major contribution of the Commission in the water works construction field would likely be in the construction of joint systems rather than in the extension of existing systems. The first major pipe line installation in Essex County calling for an expenditure of \$3,146,459.00 received preliminary approval during this period. Final approval was to be given and construction was to start on this proposal early in 1958. Pipe line supplies have been or were being investigated at the year-end for the St. Thomas-London area, the Dunnville-Port Maitland section and the supplying of water to villages, towns, cities and townships in the Grand River valley.

Installation of new Water Works

The four new water supply systems undertaken in the Province during 1957 were at Bancroft, Brock Township (Sunderland), Harrow and Havelock. All were Water Resources Commission projects as were Essex, County, Frankford, Markham Township and Winchester planned in 1957, and likely to be installed in 1958. In the installation of water supplies for the 160 towns and villages in this province

without water the Water Resources Commission can make a major contribution. No new systems were installed in 1957 in Ontario except by the Commission.

Municipal Extensions

There was considerable water works activity, particularly in the field of extensions to existing systems carried out by Ontario municipalities in 1957. The most important program took place in the Metropolitan Toronto area where the extension of the R.C.Harris plant from 100 to 200 million gallons a day capacity neared completion. In addition, the rehabilitation of the Island Filtration Plant and the extension of large feeder mains to outlying areas were proceeding. The partial curtailment of sub-division building was expected to give the Metro water distribution program a chance to provide adequate water to all areas at an early date.

Other major water works programs carried out by Ontario municipalities:

Cornwall - The completion of a 10-million gallon filtration plant and the plans for the provision of a 42-inch supply main from the Hydro Electric Power Commission closure dyke to the new plant,

Belleville - The provision of additional settling and mixing chambers for the filtration plant.

Niagara Falls - The first stage in construction of a 10 million gallon extension to the water works, the provision of mixing and settling basins.

Welland - An extension to the filtration plant.

Plans were also being finalized for new water works plants for Ajax, Whitby and Brockville, and the extension of the filter plants at Lindsay and Hamilton. This work will likely be carried out during 1958.

Inspection of Water Works

Inspection of water works throughout the Province was carried out by the Commission's District Engineers and their assistants. The field inspection of all mine water supplies in the Elliot Lake and Manitouwadge areas was an example of work in a newly developed part of the Province. It is expected that this important phase of Commission work--the inspection of existing water works--will result in an important safeguard to water consumers throughout the Province.

Evaluation of Subdivisions

There were 809 subdivision proposals submitted to the Commission during the nine-month period for evaluation. In addition, 20 regional plans were considered. This work was carried out to assist the Department of Planning and Development in reaching a decision as to whether a subdivision should be approved. In addition, meetings were held with that Department to discuss special problems that materialized in this field and to co-ordinate procedures.

SEWAGE WORKS

Next to water works every community should endeavor to supply public sewers. In general, these services have lagged far behind water works, but there is increasing interest now in building these systems and extending lateral sewers to all outlying parts of seweried municipalities. Adequate treatment of sewage is growing in public recognition. The program of the Commission includes activities to supervise the operation of these treatment works, and to make certain that the effluents do not cause undue contamination of water supplies.

D. S. Caverly as Supervisor of Sewage Works presents the following report:

Report on Sewage Works D.S.Caverly

The first nine months of full Commission operation revealed considerable activity in the sewage works field. Sewer construction proceeded, but at a reduced rate, due for the most part to a general lack of finances for subdivision expansion.

A trend was seen in treatment plant construction, and it was interesting to observe that practically no works were undertaken with direct municipal financing since the Commission came into being. However, a number of projects initiated before April 1st continued, and the municipalities involved will be issuing debentures for these.

A breakdown of the 733 certificates issued, and which were valued at \$60,886,333.40, revealed that \$47,748,817.70 was for extensions, \$9,008,935.00 for disposal, and \$4,128,530.70 for new systems.

Most applications received were for sewer extensions. Those for treatment works and complete sewerage systems were above former years. This was no doubt due to the entrance of the OWRC into the field with assistance and with stricter control on pollution.

Below are listed the applications for treatment works and complete systems received this year:-

| | |
|--------------------------|---|
| Bancroft - | Sewerage system - OWRC project |
| Beeton - | Engineering report on sewerage system |
| Brampton - | Trunk sewers and treatment plant OWRC project |
| Brantford - | Treatment plant OWRC project |
| Chelmsford - | Sewerage system |
| Elliot Lake - | 2 treatment plants |
| Frankford - | Sewerage system OWRC project |
| Grantham Twp - | Sewer system |
| Guelph - | Treatment Plant |
| Huntsville - | Engineering report - Sewerage system |
| London Twp | Treatment plant - OWRC project |
| Manitouwadge | Treatment Plant |
| Newmarket | Engineering report on trunk sewers and treatment plant - OWRC project |
| North Bay - | Engineering report on trunk sewers and treatment plant - OWRC project |
| Richmond Hill | Treatment plant OWRC project |
| Shell Oil Co. (King Twp) | Treatment plant |
| Stirling | Sewerage system |
| Stratford - | Treatment plant OWRC project |
| Tillsonburg- | Engineering report on trunk sewers and treatment plant OWRC project |
| Toronto Twp (Malton) | Treatment plant |

The above list does not include applications processed prior to April 1st which later became Commission projects.

Most of the inspection work in connection with this section was carried out by the district engineers. However a considerable number of special problems were handled from this office including the review of proposed sewage plant sites.

During this period five new sewage treatment plants were put into service at Chippawa, Port Hope, Simcoe, Stouffville and Toronto Township. (Erindale Woodlands), and two additions were completed at Aurora and Woodstock. These projects were initiated before OWRC participation and were financed by the individual municipalities.

At the present time treatment plants and related works are under construction at Elliot Lake, Guelph, Kingston, London, Manitouwadge, Metropolitan Toronto, Milton, Ontario Hospital, Penetanguishene (Ont. Department of Public Works), Richmond Hill (OWRC), Toronto Township (Lakeview) (OWRC),

and Ontario Hospital Whitby, (Ont. Dept. of Public Works). Completed, but not in service was a treatment plant for Toronto Township (Clarkson area) and tenders were to be called for a plant to serve the Malton Area of Toronto Township.

FIELD ACTIVITIES IN THE DISTRICTS

The regular field work of the Commission under the Sanitary Engineering Division is organized under four districts, each under the direction of a district engineer and his staff.

The activities of the district engineering staff cover many matters including general supervision over public water works systems, public sewage works systems, industrial waste treatment plants, stream samplings, and problems in connection with complaints of sanitary conditions. An important part of this is the assistance given in the development of water and sewage projects for the municipalities. Pollution control in the smaller streams has been intensified greatly under the Commission, and now detailed surveys are conducted regularly on these streams by the district engineering staff. These problems involve the location of sources of pollution, determining their effects on the stream, and corrective measures. E.W. Johnston, as Supervisor of Field Activities, presents the following report:-

Report on Field Activities of the Sanitary Engineering Division

E. W. Johnston

Activities

In the course of these various activities samples of public water supplies, sewage, industrial wastes, as well as stream, river and lake water were procured for bacteriological and chemical analyses. These samples were examined by the Laboratory Division of the Commission. The results are shown in the tabulation. Also the work involved preparation of reports on all investigations, preparation of maps, meetings with municipal and industrial officials.

Water Shed Surveys

During the nine months of 1957 in which the field staff of the Commission was operating a good start was made in stream pollution surveys necessary to assess the amount of pollution entering the watercourses of the Province. Sources of pollution were traced and information was obtained in regard to the character of the polluting materials.

Special mention might be made of stream pollution surveys carried out in Oxford County, Perth County, Peel County, York County and Ontario County. The whole of Oxford County was covered in the survey in that area. In the rural sections of Oxford the chief sources of pollution were from cheese factory waste discharges. Industrial wastes were encountered in Woodstock and Ingersoll sections of the Thames River as well as in some of the smaller centres. Sewage contamination came from private as well as municipal sources.

In Perth County several surveys were conducted along the Avon River below the city of Stratford. A comparison will be made with conditions following the placing in operation of a new sewage disposal plant at Stratford in the summer of 1958.

In York and Peel Counties, a number of the streams flowing into Lake Ontario were surveyed and data compiled. This augments information previously available on such streams as the Humber and Credit Rivers.

In Ontario County a preliminary stream pollution survey was carried out during the summer on Duffin Creek. Further work was done in November and December including the Petticoat Creek and Carruthers Creek Watersheds.

A list of the streams and sections of streams on which surveys were undertaken follows. This does not include those surveys made by the Industrial Waste Branch.

District No. 1

1. Lyn River - Port Dover
2. Wye Creek - Thorndale-Fanshawe Dam
3. South Branch of Thames River - Tavistock-Innerkip
4. Middle Branch of Thames River - Harrington-Embrow
5. Nith River - Oxford County
6. Otter Creek - Source to Tillsonburg
7. Reynold's Creek (Oxford County)
8. Sweaborg Creek (Oxford County)
9. South Branch of Sydenham River
10. North Branch of Sydenham River
11. Bear Creek - Petrolia-Brigden
12. Kettle Creek - complete watershed.

District No. 2

1. Maitland River - Palmerston, Harriston, Fordwich, Gorrie, Wroxeter, Wingham, Bluevale, Auburn, Ben Miller, Goderich, Listowel, Cranbrook, Brussels, Ethel
2. Bayfield River - Seaforth, Clinton, Dublin, Varna, Bayfield.
3. Blyth Creek - Blyth

4. Conestoga River - Riverbank, Bosworth, Rothsay, Moorefield
Drayton, Stirton, Hollen, Glen Allen,
Arthur, Hawkesville/
5. Avon River-Stratford
6. Nith River - Milverton
7. Otter Creek - Mildmay
8. Goon Creek - Clifford
9. Lucknow River - Lucknow, St. Helen, Dungannon, Port
Albert
10. Saugeen River

District No. 3.

1. Mimico Creek - Complete watershed.
2. Etobicoke Creek - Complete watershed
3. Oakville Creek - Partial
4. Holland River - Newmarket (remainder sampling)
5. Schomberg Creek
6. Sydenham River - Owen Sound area and Bay
7. Powassen Creek
8. Credit River - Alton, Georgetown, Milton, Orangeville.
9. Humber River - Upper reaches - King City, Caledon East,
Bolton
10. Boyne River - Alliston

District No. 4

1. Butler's Creek - Brockville
2. Duffin Creek - Complete watershed
3. Carruthers Creek - complete watershed.
4. Petticoat Creek - Complete watershed.

Work of Special Interest

Two special investigations were carried out in the Improvement District of Elliot Lake in the year. These investigations involved water supply and sewage disposal at Elliot Lake Townsite as well as at a number of mines in the area.

A special investigation was made in Nepean Township, at Bell's Corners in connection with the poisoning of cattle by cyanide.

The Interprovincial Pipe Line Co. constructed a 36-inch pipe line from Sarnia to Port Credit this year for the purpose of transporting oil between these two centres. The crude oil which passes through this line comes from Western Canada. In September, the line was put into operation and observations were made at the Grand River and Oakville Creek crossings where lagoons had been constructed for blow-off purposes. The operation was carried out successfully at both points without any oil contamination to either water course.

Summary

In reviewing the work of the field staff for 1957 an encouraging trend is indicated towards correction of stream pollution by the co-operation received from operators of canning factories and other industries. Many of these revealed either work already undertaken or that corrective measures were to be instituted. These remedial works cost much money and are an indication of the progress that is being accomplished in a short time. It may be anticipated that much more pollution abatement will be accomplished in 1958.

There also was gratifying interest manifested by elected representatives of municipalities, municipal officials, local health agencies and others in support of the pollution control program initiated by the Commission. The assistance and co-operation of local health officers and municipal clerks was most helpful in the work of the field staff.

Details of the various investigations undertaken during the period of April 1st. to December 31st, 1957, are shown below.

Summary of Field Work-April-
December, 1957

Investigations:

Water Works and Water Supply

| | | |
|------------------------------------|---------------|-----|
| Chlorination inspections - | municipal - | 84 |
| | institutional | 2 |
| | private | 19 |
| General inspections | municipal - | 86 |
| | industrial - | 1 |
| | private - | 20 |
| Special inspections | - | 15 |
| Water Samples collected: Bacterial | - | 212 |
| | Chemical - | 90 |

Sewerage & Sewage Treatment

| | | |
|---------------------------------|---------------|-----|
| Treatment plant inspections - | municipal | 68 |
| | industrial | 150 |
| | military | 1 |
| | institutional | 5 |
| | private | 45 |
| sewerage investigations | | 62 |
| industrial waste investigations | | 109 |
| drainage investigations | | 15 |
| samples collected: bacterial | | 19 |
| | chemical | 64 |
| | other | 2 |

Stream Pollution

| | | |
|---------------------------------|---|------|
| Stream pollution surveys | - | 129 |
| Algae & plankton investigations | - | 2 |
| Samples collected: bacterial | - | 575 |
| chemical | - | 1331 |

Miscellaneous

| | | |
|-------------------------------------|---|----|
| Proposed subdivision investigations | - | 4 |
| other | - | 20 |

General

Meetings - councils - 34
municipal officials - 112
public utilities commissions - 33
consulting engineers - 9
medical officers of health - 168
others - 213

GROUND WATER BRANCH

The Ground Water Branch of the Commission was transferred in April from the Department of Mines. It has supervision over well drilling operations throughout the Province from which a great deal of information is assembled on ground water. This information and the services of the personnel of the branch are available to all municipalities and others who are concerned in ground water programs. It is expected that this branch will give extensive coverage in its services to the various parts of the Province as time and facilities make this possible.

Report of the Ground Water Branch
A. K. Watt

The Ground Water Branch was engaged throughout the year in the assembling of ground-water data and in using these data to assist individuals, industries and municipalities to solve problems relating to ground water. The activities were mainly threefold:

- 1) Administration of those sections of the Acts and Regulations pertaining to water wells
- 2) Study of ground water levels by means of observation wells.
- 3) Handling requests for advice or help on ground-water problems resulting in correspondence, consultations and field investigations.

Administration of Acts and Regulations

Under the Water-Well Drillers Act, 1954, the water well

drillers were licensed in Ontario and were required to submit well data to the Branch for each well drilled. This authority has now been incorporated in the Ontario Water Resources Commission Act, 1957, but the Regulations made under the former Act remained in effect throughout the year.

The groundwork for a significant step in sanitary well construction and in a well driller's responsibility to the home owner was laid during the year. Numerous meetings were held with representatives of the Water Well Association and the opinions of pump manufacturing associations were obtained in arriving at a draft copy of new Regulations made ready by the end of the year.

The majority of the staff was occupied with administration of the Act and Regulations. The water well records received from the drillers numbered 5,037 in 1957. A total of 582 licenses were issued, 77 of which were to new drillers. The well records were checked by office staff, returned if necessary to the driller for correction by way of the two field inspectors and finally filed in the OWRC office.

No count has been kept of the number of people who examined these records during the year. Engineering firms, government departments and technical men involved in some field of research, used the well data more than other individuals.

Part of the staff was steadily engaged in compilation of the well data received in the years 1953-1954. Some 9,000 well records were involved which meant considerable re-checking. It is anticipated that this information will be published by the Commission in a somewhat similar form to the three bulletins issued by the Department of Mines for the period 1947-52. In addition to the bulletins that are distributed by the Publications Office of the Department of Mines, there is a mailing list of over 800 people who have requested that copies of these reports be sent to them as they are published.

Observation Wells

Measurements were taken of water levels in 35 wells during 1957. Automatic recording instruments were set up over 11 of these. Measurements on the other wells were taken with steel tape at intervals varying from once a week to two or three times a year.

One of the instruments was installed over a well in a small watershed on the north branch of the Thames River where a hydrologic study is being carried on co-operatively by the

Department of Planning and Development, the Upper Thames River Valley Conservation Authority, the Ontario Water Resources Commission and the Meteorological Branch, Federal Department of Transport.

Ground Water Investigations

A total of 43 field investigations were made from April, when the Branch became part of the Commission, to the end of December. Most of the investigations involved only a day or two of field work resulting in certain recommendations to the owner or municipality concerned with regard to the most likely places to develop a well.

A few of the investigations involved actual selection of a site, test drilling and carrying on supervision of pumping tests. This marked a departure from previous undertakings of the Branch but was in line with the present policy of the Commission. Frankford, Parkhill and Winchester were the municipalities concerned in this more extensive survey. Only one test-hole was necessary at Frankford to locate a well supply. The area around Parkhill was carefully examined, several test-holes drilled and fresh water horizons tested before the search was abandoned in favor of treating the sulphurous rock water. The stage was set for the Winchester project by the end of the year following several meetings with members of the village council and the selection of well drilling sites.

Two field investigations involving private home owners were of special interest. A London suburbanite felt that one of the London municipal wells was responsible for the lowered water levels in his well. An investigation supported his contention. The second investigation in the Cooksville-Erindale area was a prolonged one during August and September. It involved the tracing of ground water movement by means of a dye to locate the source of oil pollution in three water wells. Careful sampling of wells in the area showed widespread presence of phenol equivalents but few instances of oil. There was no apparent reason for the presence of phenol equivalents and the oil which had been flowing into the wells concerned for more than two years.

General Resume of Activities

Measurements of water levels in observation wells continued. This phase of branch activities received the least attention during the year.

Ground water investigations were numerous. They were

mostly concerned with a preliminary survey of ground water conditions in the vicinity of villages which were considering setting up water works.

The instance of lowered water levels near London would probably accelerate the need for new water control which would be related to the use of ground water.

The highlights of the year's activities were two-fold:

- 1) the co-operative approach to the appraisal and development of ground-water supplies by municipalities and the OWRC.
- 2) the co-operative efforts of the well drillers and pump manufacturers to improve well construction in Ontario, culminating in the draft set of new water well regulations.

LABORATORIES AND RESEARCH

The Laboratories of the Commission are an important factor in the program for water supply, sewage works, industrial wastes, and stream sanitation. Analyses of various kinds are carried on here, and through these tests information is made available for the use of the Commission's staff as well as for municipalities and others concerned with these problems. When the new laboratory is completed it is hoped to expand these activities considerably. Much of the personnel at the beginning of the year in the laboratories was transferred from the Ontario Department of Health. A branch laboratory was opened at Sarnia during the year.

A.V. DeLaporte as Director of Laboratories and Research presents the following report, and included in this are reports on laboratory activities, industrial wastes, and purification processes:

Report of Laboratories and Research A. V. DeLaporte, Director

The transfer of the Experimental Station, or Laboratory, from the Department of Health to the Commission necessitated changes in office routine, with the compilation and issuance of analytical and other reports.

The chemical laboratory was fortunate in being able to obtain a number of good technical men from the influx of new Canadians. Although language presented some difficulty, a good work team was forged. This was demonstrated in the amount of work completed and the number of analytical determinations made.

A successful court prosecution for major damage to Black Creek was the first under the new legislation. The sampling, analyses and assembly of the relevant data were time consuming, but the results were conclusive.

Studies of pollution of the international waters, under reference to the International Joint Commission, were made during the summer and fall. The Niagara frontier waters seemed to be showing a steady improvement in quality. There was no major industrial pollution from Canada in the area. Most of the industries were checked by the field party. In general, improvement was noted.

The Lake Huron-Lake Erie study developed two interesting features. On the Detroit River, samples taken on range DT14.6 (that is from the Wyandotte City Water Works to the tip of Fighting Island) gave on one-day a M.P.N of 2.4 million across the range.

In August the examination of samples taken across the St. Clair River, under the Blue Water Bridge, showed a heavy phenol contamination. This would indicate that gross pollution had occurred in Lake Huron from some unknown source.

The Commission-sponsored Industrial Waste Conference was another highlight. The refineries, petrochemical industries, agricultural, chemicals, food processing and dairy industries were well represented. There was some representation from the plating, metal working, pulp and paper, and tanning industries.

POLLUTION ABATEMENT

Special attention was directed during the year to the abatement of pollution of all water courses including surface supplies and underground. This involved both small streams and large ones. Work was concentrated on sampling of these streams and in determining the location of all sources of pollution. A major problem existed in the smaller centres where sanitary sewers had not been constructed, and where storm drains had been built and connections permitted to these. In many instances land was not available for septic tank installations. The solution of this problem is complex and will require some time for complete correction.

The legislation is now quite specific in regard to pollution of a stream. Section 27 of the Water Resources Commission Act reads as follows:-

- 27.-(1) Every municipality or person that discharges or deposits any material of any kind into or in any well, lake river,

pond, spring stream or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of such well, lake, river, pond, spring, stream or other water or watercourse is guilty of an offence and on summary conviction is liable to a penalty of not more than \$1,000 or to imprisonment for a term of not more than one year, or to both.

Discharge of polluting material prohibited.

Orders are issued to correct pollution of these streams within specific time limits. It is when action is not taken by the offending parties that recourse is had to the authority of the legislation. O.V. Ball as Supervisor of Stream Sanitation presents the following report:

Stream Sanitation Report
O. V. Ball, Supervisor

Work in connection with stream sanitation consists first in the location and evaluation of polluting effluents, municipal, industrial, and private, and then in follow-up procedure to have the polluting material removed or given adequate treatment. This includes much of the work of the district engineering section, the industrial wastes, laboratory and biological sections and the head office. Much of the work on boundary waters is done under the auspices of the International Joint Commission.

During 1957 surveys or inspections were made involving effluents to over 50 streams or lakes. Expansion of this work to any large degree is related to an expansion of laboratory facilities and staff.

Once the extent of the pollution is determined at any location, follow-up work is essential. Routine procedure for this work is essential. In this connection the co-operation of the municipalities, health units and conservation authorities can be of great value in sampling and inspection work and in publicity.

Following is a synopsis of the work done on streams and lakes in 1957 through the district engineering and other staffs.

Avon River - Repeated series of samples on the river below Stratford.

Bayfield River - A river survey and surveys of pollution outfalls in Seaforth, Clinton, Dublin and at Clinton Air Force Station. The municipalities and industries involved were notified by the Commission's

general manager.

Beaverton River - Industrial waste surveys at two industries in Beaverton.

Bloomfield Creek - Industrial waste inspections at three canneries and a rubber factory.

Butler's Creek, Brockville - A survey of pollution outfalls.

Canavigue Creek - To Grand River - pollution survey at Elmira and Woolwich Township.

Carruthers Creek to Lake Ontario, east of Ajax - Stream survey.

Catfish Creek at Aylmer - Inspection of cannery and follow-up.

Colborne Creek at Colborne - Inspection of three canneries with follow-up.

Conestogo River to Grand River - River survey with surveys of pollution outfalls in St. Jacobs, Moorefield, Drayton and Arthur, with follow-up with municipalities and industries.

Credit River - A survey of the whole river with repeat surveys of Black and Silver Creeks. Industrial and sewage disposal plant inspections at Georgetown, Glen Williams, Acton, Orangeville, Streetsville, Erindale, Port Credit, Sanitary survey at Alton.

Don River - River survey, also regular series of samples at Richmond Hill.

Detroit River - International Joint Commission river survey with industrial waste inspections at Windsor and Amherstburg.

Duffin Creek - River survey with survey of pollution outfalls in Ajax, Pickering and Stouffville.

Lake Erie - Lake samples in Leamington vicinity. International Joint Commission survey of both ends of the lake. Industrial waste survey at Canada Furnace Company, Port Colborne.

Etobicoke Creek - River survey and survey of pollution outfalls in Brampton, also industrial waste survey at Brampton. Inspection of sewage disposal plants at Long Branch, Toronto Township, Malton, and Brampton.

Georgian Bay - Sampling done at Owen Sound Bay.

Grand River and Speed River - River survey, industrial waste inspections at Dundalk and Paris. Sewage disposal plant inspections of Waterloo, Kitchener, Guelph, Hespeler, Preston, Galt, Ontario Agricultural College, Ontario Veterinary College and Reformatory at Guelph.

Humber River - River survey and sanitary surveys at Bolton and Caledon East. Industrial Waste or sewage disposal plant inspections at Woodbridge, Bolton, Weston, York Township, Sick Childrens Hospital.

Holland and Schomberg Rivers - A river survey and surveys of pollution outfalls at Aurora, Newmarket, Bradford and Schomberg. Sewage disposal plant inspection at Aurora.

Kettle Creek - River survey with survey of pollution out-falls at Port Stanley, St. Thomas and Belmont, with follow-up.

Little River to Lake St. Clair - Industrial waste inspection at East Side Plating Company.

Lucknow River - River survey and survey of pollution outfalls in Lucknow, with follow-up with municipality.

Lynn River and Black Creek - Survey of pollution outfalls at Port Dover. Sewage disposal plant or industrial waste inspections at Simcoe and Port Dover.

Maitland River and Blyth Creek - River survey and survey of pollution outfall at Palmerston, Harriston, Brussels, Wingham, Listowel, Blyth, Milverton, with follow-up with municipalities and industries.

Mimico Creek - River survey and sewage disposal plant inspection in Toronto Township.

Moira River - Industrial waste inspections at Corbyville and Foxboro.

Napanee River - River samples at Napanee. Research at Strathcona Paper Company.

Nation River - Effluent drain samples at Casselman.

Niagara River - International Joint Commission surveys of upper and lower river.

Nith River - River survey and survey of pollution outfalls at Milverton, Millbank, Wellesley, New Hamburg, Baden, New Dundee and Ayr, with follow-up with

municipalities and industries. Industrial waste inspections at Paris.

Nottawasaga River and Tributaries - effluent samples at Camp Borden on the Pine River and Alliston on the Boyne River.

Oakville Creek - River survey of the lower part of the river.

Onaping River - Effluent samples at Levack and Moose Creek.

Lake Ontario, at Toronto - Waterfront survey of Metropolitan Toronto, repeated samplings of lake at bathing beaches. Industrial waste effluents at Winona, Clarkson and Port Credit. International Joint Commission survey of the south side of the lake from Niagara to Port Dalhousie.

Otter Creek to Lake Erie - River survey and effluent samples at Norwich, and Tillsonburg, with follow-up with industries and municipalities.

Petticoat Creek - River survey.

Bay of Quinte - Industrial waste survey at Belleville and Trenton.

St. Clair River - Industrial survey at Sarnia (phenol and oil pollution) and upper river survey for International Joint Commission.

St. Mary's River - Industrial waste survey at Sault Ste. Marie.

St. Lawrence River - Survey of Industrial wastes at Maitland.

Saugeen River - Survey of pollution effluents at Clifford, Mildmay and Durham, with follow-up with municipalities and industries.

Serpent River System - Surveys of industrial and sanitary wastes at mines in Elliot Lake Improvement District.

Lake Simcoe - Survey of Kempenfeldt Bay and effluent creeks and sewage disposal plant at Barrie.

South River - Samples at Powassan on Genesee Creek.

Spanish River - Industrial waste inspection at K.V.P. Company, Espanola.

Sydenham River - River survey and survey of polluting

effluents at Strathroy, Alvinston, Petrolia, Dresden, Wallaceburg, and Brigden.

Sydenham River at Owen Sound - Effluent samples.

Stoney Creek - Industrial wastes and sewage disposal plant inspections.

Thames River - River survey of whole river and a repeat survey in the London area. Sewage disposal plant and industrial waste inspections at London, Woodstock, Ingersoll and Chatham vicinity.

Trent River System - Industrial waste survey at Trenton, sewage disposal plant and industrial waste inspections at Lindsay, Trenton, Paudash Lake and Bow Lake.

Twelve Mile Creek and Old Canal - Industrial waste and sewage disposal plant inspections at Port Dalhousie, St. Catharines, Thorold, Fonthill, and Ridgeville.

Welland River and Power Canal - Industrial waste inspections at Welland.

River survey and sewage disposal plant effluent samples in Stamford Township by township officials.

PURIFICATION PROCESSES
J. G. Duncan, Supervisor

The research on total oxidation of cannery waste was continued during 1957 at Canadian Cannery's Plant at Exeter. Total oxidation was not attained, but the process was quite successful in stabilizing pea and corn waste. There are still several problems to be worked out in this process.

Work is continuing on the phenol problem at Strathcona Paper Company. Oxidation of this waste with chlorine and chlorine dioxide was first tried, but was not successful. A biological filter was then installed, using "Dowpac" as the filter media. Reduction of phenols as high as 90% has been obtained and the present work is to determine conditions under which maximum oxidation of phenol takes place.

A Katadyn water purifier was tested during the year. This equipment utilizes the oligodynamic reaction of silver to kill bacteria. All samples taken revealed it was not a very satisfactory method for sterilizing water. The equipment was returned to the owners for checking and further sampling will be done if they are satisfied it is working satisfactorily.

The Naugatuck Chemical Company of Elmira, in conducting a research program on the oxidation of phenols

in their waste water, completed tests on a "Dowpac" tower and found it very effective on some types of phenol, but that it lost some of its efficiency on chloro phenol compounds. They were using an "Aeroaccelator" at the year-end and reported encouraging results.

INDUSTRIAL WASTES F. A. Voegel, Supervisor

The field study of Industrial wastes throughout Ontario first began as a function of the Ontario Water Resources Commission on April 1st, 1957. Since that time, the personnel assigned to the industrial waste branch have conducted surveys of a wide variety of industries, some as isolated sources of pollution, others as groups which were considered collectively.

Concerning the latter, a survey of all the industries in the Town of Trenton was made in the late fall to relate the effects of industrial wastes to proposed sewage treatment which the Commission had previously agreed to provide for the town. A total of 22 industries was examined, with a detailed study being made of eight of these.

Similarly, industries in the Town of Paris were studied and some surveys were conducted. This was to assist engineers of the Ontario Water Resources Commission in the study concerning the building of a sewage treatment plant at Paris. Twelve industries were visited and a detailed study was made of two of these.

In October, 10 uranium mines in the Improvement District of Elliot Lake were studied. These mines have the similar waste problem of disposing of the barren tailings in such a way that the waters in the watersheds in the area do not become polluted. The fact that the mines discharge a total of 33,200 tons of tailings a day indicates the magnitude of the problem.

A unique investigation followed a train-truck accident at Thamesville, in which cyanide pellets were scattered in the vicinity of the accident, endangering the well water supplies in the town. Supervision of the clean-up program and examination of well water continued for three months after the incident.

The Statistics of the Industrial Waste Branch surveys are as follows:

For OWRC

Industrial Waste Investigations

For I.J.C

Industrial Waste Investigations 85

Others

Stream Surveys 6
Industrial Waste Investigations 20
Miscellaneous pollution investigations 5

CHEMISTRY LABORATORY

A major advantage followed the organization of the Ontario Water Resources Commission in the acquisition of additional staff at the Experimental Station's laboratory. An increase of 160% in the number of samples analysed by laboratory personnel has been achieved compared to 1956. It is expected, that with temporary expansion of facilities, this volume can be increased further in 1958.

Statistical data.

Orthotolidine 366 shipments
Color Standards 61 "
Miscellaneous 54 "

Experimental Station

| | <u>Samples</u> | <u>Determinations</u> |
|--------------|----------------|-----------------------|
| Sewage | 2,862 | 13,131 |
| Water | 927 | 3,072 |
| River Survey | 1,329 | 8,312 |
| Trade Waste | 392 | 2,701 |
| | <u>5,510</u> | <u>27,216</u> |

Field Laboratories

| | | |
|-------------------|-------|--------|
| I.J.C. | 2,105 | 2,149 |
| Pilot Plants | 887 | 2,060 |
| (Waste Treatment) | | |
| Totals | 8,502 | 31,425 |

Stream and River Surveys 12
Industrial Waste Investigations 27
Water Supply Investigations 2

BIOLOGY SECTION

John H. Neil, Biologist

All problems of a biological nature (excluding bacteriology) are handled by this section of the laboratory. These include studies of algae as they affect the use of water for municipal supplies and recreational purposes, and the effects of pollution on life in receiving waters.

Of particular interest in 1957 was the introduction of the microstrainer. This was in part the result of investigations performed by this section on the efficiency and adaptability of this equipment to Ontario conditions. A second new process introduced during the past year was the treatment of sewage in oxidation ponds. Literature reviews and consultation regarding design and operation of these installations were provided, and it appeared this process would provide an efficient and inexpensive method of treatment where applicable.

Two scientific papers were prepared; one presented at the Purdue Industrial Waste Conference on Problems and Control of Unnatural Fertilization of Lake Waters, and a second entitled "Some Effects of Potassium Cyanide on Speckled Trout", presented at the Fourth Ontario Industrial Waste Conference. Both papers resulted from original research done by this laboratory.

BACTERIOLOGICAL LABORATORY
L.T. Vlassoff, Bacteriologist

A total number of 1,768 and 3,846 water and sewage, and river survey samples, respectively, were submitted to the laboratory for routine bacteriological determinations during the year 1957. Of the river survey sample examinations 455 were carried out in the field laboratory at St. Catharines, while the remainder together with the water and sewage samples, were analyzed in the Toronto laboratory.

Investigation into applicability of the membrane filter technique was carried out. This method was found to be a vast improvement over former methods, giving more precise and more rapid results, for bacteriological analyses.

PUBLIC INFORMATION

The program of the Commission includes supplying information on the work that is carried on and is contemplated. This involves not only the release of information on current problems, and actions taken, but also educational material in the publication of manuals and various technical brochures for the guidance of those who are in that field embraced by the Commission. A public information director in the person of John C. Scott was added to the Commission during the year, and it is intended to develop this program to give a maximum degree of service. Mr. Scott presents his report as follows:-

Report on Public Information
John C. Scott

This office was not set up until mid-year, July 2nd at which time John C. Scott, Director of Publicity for the Ontario Department of Health, took over as Director of

Public Information for the Commission in charge of advertising, public relations and publicity, with all their many facets.

During its first six months of operation, the Office of Public Information established contact with various publicity media, particularly press and interested trade publications. A regular news release service was set up while close touch was maintained with publications interested in all aspects of Commission contracts with municipalities--tender calls, contract awards, etc.

Commission activities of local interest were featured by London and Kitchener TV stations on several occasions.

Layouts and copy were suggested for several proposed OWRC publications and it was the hope that printing of these would be proceeded with early in 1958. A monthly staff publication--"OWRC NEWS"--was established. Several publications were revamped or prepared for Commission use. The "Report on Pollution in Oxford County" was prepared for publication.

Full co-operation was extended several publications which did feature articles on the Commission, its officers and its work.

SUMMARY FOR 1957

In summary, major accomplishments of the year included:

Completion of the Commission's first construction project, a water system at Port Perry, listed in the year-end financial report as a capital asset of \$62,731.

Entering by the Commission into 21 agreements with 18 municipalities, and involving 15 projects, 10 water and five sewage, valued at more than \$9,000,000.

The letting of contracts for a new laboratory building, which, when completed, will be a most important aid to the work of the Commission.

The passing of legislation included in The Ontario Water Resources Commission Act, 1957, expanded the program of the Commission and provided tools for more effective work. This was particularly so in pollution abatement.

Ground water activities were expanded during the year and indications were for more intensive work in this in the future.

Development of water resources with information on where water supplies could be obtained and the probable costs were a significant part of the program of the

Commission. It was anticipated this work would proceed at an even faster pace as facilities became available, and as increasing interest was shown by municipalities in this service.

Administration of the Plumbing Regulations was transferred from the Department of Health to the Commission.

Industrial expansion brings very real problems in the control of industrial wastes. Much of Ontario is now developing industrially and the types of waste call for close supervision as well as research studies on methods of treatment. Pollution control in all its aspects was given top rating by the Commission. The operation of projects constructed by the Commission will be an important obligation. It is hoped to carry this out jointly with the municipalities on a co-operative basis.

The first year of the program of the Commission has accomplished much, and has pointed in the direction which will be followed as the Commission's full program is gradually developed.

APPENDIX I

SUMMARY OF APPROVAL CERTIFICATES ISSUED IN 1957

| <u>WATER WORKS</u> | <u>ESTIMATED COST</u> |
|--------------------------------------|-----------------------|
| Extensions to existing systems | \$ 21,957,668.05 |
| Purification of water supplies | 2,249,117.02 |
| New Systems | 1,762,505.83 |
| | <hr/> |
| TOTAL | \$ 25,969,290.90 |

| <u>SEWAGE WORKS</u> | |
|--------------------------------------|------------------|
| Extensions to existing systems | \$ 47,748,817.70 |
| Treatment works | 9,008,935.00 |
| New sewerage systems | 4,128,580.70 |
| | <hr/> |
| TOTAL | \$ 60,886,333.40 |

The total number of applications favourably reported upon re water works and sewage works for the nine months period, April 1st to December 31st, 1957 was 1,299 and involved a total estimated expenditure of \$ 86,855,624.30

CERTIFICATES ISSUED RE WATER WORKS FOR THE YEAR 1957

| Municipality | No. of Certi-
ficates | Water Main
Extensions | Supply and
Purification | New
Systems |
|--|--------------------------|--------------------------|----------------------------|----------------|
| | | \$ | \$ | \$ |
| Acton | 1 | 54,500.00 | 29,750.00 | |
| +Ajax | 1 | | +560,000.00 | |
| Alexandria | 1 | 17,000.00 | | |
| Almonte | 3 | 18,674.00 | | |
| Ancaster Twp. (Messrs.
Nielsen & McCrory).... | 1 | 16,300.67 | | |
| Arnprior | 2 | 21,524.03 | | |
| Asphodel Twp. | 1 | 5,500.00 | | |
| Atikokan Twp. | 1 | 60,078.61 | | |
| Aurora | 6 | 403,026.45 | 69,484.00 | |
| Aylmer | 1 | 5,153.19 | | |
| Bancroft | 3 | 34,315.00 | | 233,120.00 |
| Barrie | 5 | 45,793.46 | | |
| Bath | 1 | | | 77,584.83 |
| Belleville | 2 | 24,000.00 | 290,000.00 | |
| Bertie Twp. | 1 | 8,123.54 | | |
| Blind River | 2 | 35,150.10 | | |
| Bolton | 1 | 17,445.00 | | |
| Bracebridge | 1 | 63,000.00 | | |
| Brantford | 3 | 132,777.00 | | |
| Brantford Twp. | 1 | 5,278.50 | | |
| Brockville | 5 | 252,175.90 | | |
| +Brockville | 1 | +930,000.00 | | |
| Bronte | 2 | 6,586.85 | | |
| Capreol | 2 | 55,812.98 | | |
| Cardiff I.D. | 1 | 13,600.00 | | |
| Carleton Place | 1 | 4,122.70 | | |
| Chatham Twp. | 2 | 69,195.00 | | |
| Chelmsford | 1 | 24,512.60 | | |
| Chippawa | 5 | 87,317.25 | | |
| Cobden | 1 | 850.00 | | |
| Collingwood | 1 | 7,089.16 | | |
| Cornwall | 16 | 868,718.60 | | |
| Cornwall Twp. (New Sault
Home Builders Co-
operative)..... | 1 | | 17,000.00 | |
| Crowland Twp. | 4 | 29,884.14 | | |
| Deep River I.D. | 3 | 30,185.40 | | |
| Delhi | 1 | 8,502.69 | | |
| Dorchester South Twp. | 1 | 2,200.00 | | |

Water Works Approvals (cont'd)

| Municipality | No. of Certi-
ficates | Water Main
Extensions | Supply and
Purification | New
Systems |
|---|--------------------------|--------------------------|----------------------------|----------------|
| Dover Twp. | 2 | 11,400.00 | | |
| Dresden | 1 | | 149,469.00 | |
| Dundas | 1 | 40,000.00 | 15,000.00 | |
| Dundas(Feiden Construc-
tion Company Ltd.)..... | 1 | 9,132.62 | | |
| Dundas(Mr. W. Yates).... | 1 | 3,458.79 | | |
| Dunnville | 1 | | +500,000.00 | |
| Easthope Twp.(Ross O.
Bell)..... | 1 | | 1,000.00 | |
| Eastview | 1 | 12,093.24 | | |
| Elliot Lake I.D. | 9 | 961,267.23 | | |
| Elmira | 1 | 7,626.00 | | |
| Elora | 1 | | 5,000.00 | |
| Erin | 1 | 4,350.00 | | |
| Ernestown Twp.(Amwat
Company, Kingston)..... | 1 | 8,062.84 | | |
| Essex | 1 | 106,283.00 | | |
| Etobicoke Twp. | 29 | 684,592.04 | | |
| Fergus | 2 | 14,100.00 | | |
| Ferris West Twp. | 1 | 16,253.00 | | |
| Ferris West Twp.(Ralph-
way Construction Ltd.).. | 1 | 132,392.00 | | |
| Flamborough East Twp. | 1 | 5,510.54 | | |
| Fonthill | 1 | 5,002.00 | | |
| Forest Hill Village | 1 | 11,200.00 | | |
| Fort Frances | 2 | 8,800.00 | | |
| Frankford | 1 | | | 113,000.00 |
| Galt | 3 | 12,538.28 | | |
| Gananoque | 1 | 7,700.00 | | |
| Goderich | 1 | 1,875.00 | | |
| Grantham Twp. | 1 | 16,300.20 | | |
| Grimsby | 1 | 104,500.00 | | |
| Grimsby North Twp. | 4 | 65,195.45 | | |
| Guelph Twp. | 1 | | 15,000.00 | |
| Hamilton | 22 | 434,362.90 | | |
| Hanover | 1 | 115,500.00 | | |
| Harrow | 3 | 11,500.00 | | 470,463.00 |
| Harwich Twp. | 2 | 81,690.00 | | |
| Havelock | 1 | | | 184,600.00 |
| Hawkesbury | 2 | 30,681.00 | | |
| Hespeler | 2 | 23,583.63 | | |
| Humberstone Twp. | 1 | 18,054.06 | | |

Water Works Approvals (cont'd)

| Municipality | No. of Certi-
ficates | Water Main
Extensions | Supply and
Purification | New
Systems |
|---|--------------------------|--------------------------|----------------------------|----------------|
| Ingersoll | 1 | 76,800.00 | | |
| Kapuskasing | 1 | 10,500.00 | | |
| Kemptville | 1 | 2,050.00 | | |
| Kincardine | 1 | 7,000.00 | | |
| King Twp. (P.V. of King)... | 1 | | 22,200.00 | |
| King Twp. (Mr. W. B.
Cross, Toronto)..... | 1 | 15,000.00 | | |
| Kingston | 13 | 519,176.29 | 2,018.52 | |
| Kitchener | 9 | 351,894.62 | | |
| Korah Twp. | 1 | 22,184.50 | | |
| LaSalle | 3 | 49,815.00 | | |
| Leamington | 1 | 6,228.00 | | |
| Leamington & adjacent
municipalities) | 1 | | | +3,432,530.00 |
| Levack | 1 | 5,800.00 | | |
| Lindsay | 3 | 14,715.38 | 260,860.00 | |
| Listowel | 1 | 11,740.43 | | |
| London | 1 | 316,004.70 | | |
| London Twp. | 5 | 15,495.16 | | |
| Louth Twp. | 1 | 1,510.00 | | |
| Manitouwadge I.D. | 1 | 3,535.00 | | |
| Markham | 1 | 19,830.00 | | |
| Markham Twp. | 3 | 129,750.00 | | 458,738.00 |
| Matheson | 1 | 6,954.00 | | |
| McKim Twp. | 7 | 143,325.31 | | |
| Milton | 3 | 8,591.06 | 36,500.00 | |
| Moore Twp. (Vroom Con-
struction Company
Ltd., Sarnia)..... | 1 | 5,898.00 | | |
| Muskoka Twp. (Mr. S.D.
Brown, Gravenhurst)... | 1 | | 8,800.00 | |
| Neelon & Garson Twps. | 3 | 40,103.27 | | |
| Neelon Twp. (Mr. W. Adams) | 1 | 3,109.00 | | |
| Nelson Twp. | 9 | 211,065.34 | | |
| Nepean Twp. (The Alvin
Stewart Company)..... | 1 | 10,120.00 | | |
| Nepean Twp. (Lynar Realty
Company)..... | 1 | | 63,011.00 | |
| New Liskeard | 1 | 13,670.00 | | |
| Newmarket | 3 | 21,475.00 | 53,700.00 | |

Water Works Approvals (cont'd)

| Municipality | No. of Certi-
ficates | Water Main
Extensions | Supply and
Purification | New
Systems |
|---|--------------------------|--------------------------|----------------------------|----------------|
| Niagara Twp. | 1 | 4,056.00 | | |
| Niagara Twp. (Messrs.
Andres & Dyeck)..... | 1 | 16,500.00 | | |
| Missouri East Twp. (Mr.
J. MacYoung)..... | 1 | | 3,500.00 | |
| Norwich | 1 | 2,950.00 | | |
| Orillia | 4 | 44,557.78 | | |
| Orillia (Mr. Ralph W.
Smith, Orillia)..... | 1 | 42,003.40 | | |
| Orillia Twp. | 1 | 6,013.92 | | |
| Oshawa | 2 | 224,556.50 | | |
| Ottawa | 20 | 759,750.20 | | |
| Ottawa (Carleton College) | 1 | 35,000.00 | | |
| Owen Sound | 5 | 35,742.96 | | |
| Oxford West Twp. | 1 | 2,640.00 | | |
| Paris | 2 | 55,000.00 | | |
| Pembroke | 6 | 429,222.62 | | |
| Peterborough | 13 | 114,167.03 | | |
| Pickering Twp. | 2 | 44,415.00 | | |
| Port Arthur | 1 | 203,391.00 | | |
| Port Carling | 1 | 27,894.55 | | |
| Port Colborne | 1 | 9,888.29 | | |
| Port Dalhousie | 1 | 20,000.00 | | |
| Port Hope | 5 | 40,400.00 | | |
| Port Perry | 1 | 69,531.55 | | |
| Prescott | 1 | 5,395.20 | | |
| Preston | 3 | 20,487.30 | | |
| Renfrew | 6 | 27,343.07 | | |
| Richmond Hill | 3 | 431,286.40 | | |
| Richmond Hill (Mr. S.
Sorbara, Toronto)..... | 1 | 1,600.00 | | |
| Ridgetown | 1 | 7,298.85 | | |
| Riverside | 4 | 21,252.00 | | |
| St. Marys | 1 | 15,000.00 | | |
| St. Thomas | 1 | 11,100.69 | | |
| Saltfleet Twp. | 2 | 27,968.00 | | |
| Sandwich East Twp. | 3 | 18,375.00 | | |
| Sandwich South Twp. | 1 | 10,024.00 | | |
| Sandwich West Twp. | 7 | 64,919.00 | | |

Water Works Approvals (cont'd)

| Municipality | No. of Certi-
ficates | Water Main
Extensions | Supply and
Purification | New
Systems |
|---|--------------------------|--------------------------|----------------------------|----------------|
| Sarnia | 10 | 117,995.00 | | |
| Sarnia Twp. | 1 | 8,820.00 | | |
| Scarborough Twp. | 27 | 883,459.54 | | |
| Schreiber Twp. | 1 | 12,000.00 | | |
| Shedden Twp.(unorganized)
(Noranda Mines Ltd.).... | 1 | | 56,000.00 | |
| Simcoe | 1 | 27,357.73 | | |
| Smiths Falls | 2 | 44,265.00 | | |
| Stamford Twp. | 4 | 183,026.11 | | |
| Stoney Creek | 2 | 6,229.07 | | |
| Stoney Creek(Sinclair
Construction Company)... | 1 | 4,113.15 | | |
| Stouffville | 1 | | 1,976.00 | |
| Stouffville(Crown Develop-
ment Co.,Toronto)..... | 1 | 11,500.00 | | |
| Strathroy | 1 | 1,616.00 | | |
| Streetsville | 3 | 18,600.00 | 100,000.00 | |
| Sturgeon Falls | 4 | 65,425.00 | | |
| Sudbury | 5 | 227,110.00 | | |
| Teck Twp. | 2 | 42,650.00 | | |
| Thorah Twp.(Mr. A. L.
Sanagan,Toronto)..... | 1 | 750.20 | | |
| Thornbury | 1 | | 44,090.00 | |
| Thorold | 1 | 3,625.00 | | |
| Thorold Twp. | 3 | 55,984.00 | | |
| Thurlow Twp. | 3 | 36,225.00 | | |
| Tilbury North Twp. | 1 | 50,295.00 | | |
| Toronto | 2 | 50,177.28 | | |
| Toronto Metro | 9 | 5,465,675.00 | 1,012,000.20 | |
| Toronto Twp. | 10 | 595,255.30 | | |
| Toronto Twp.(Erwin Mills
Development,Don Mills).. | 1 | 42,716.06 | | |
| Trafalgar Twp. | 3 | 90,647.61 | | |
| Tuckersmith Twp. | 1 | 9,900.00 | | |
| Tweed | 1 | 1,400.00 | | |
| Vaughan Twp. | 1 | 9,000.00 | | |
| Wallaceburg | 2 | 48,575.00 | | |
| Waterloo | 9 | 112,168.00 | | |
| Watford | 1 | 1,300.00 | | |
| Westminster Twp. | 1 | 11,700.00 | | |
| Weston | 1 | 3,300.00 | | |

Water Works Approvals (cont'd)

| Municipality | No. of Certi-
ficates | Water Main
Extensions | Supply and
Purification | New
Systems |
|--|--------------------------|--------------------------|----------------------------|----------------|
| Whitby | 1 | 20,980.00 | | |
| Whitby(L. J. Walton Ltd.
& T.Donovan Ltd.,
Toronto)..... | 2 | 65,808.84 | | |
| Whitby(McCullough Con-
struction Ltd.,
Oshawa)..... | 1 | 57,505.00 | | |
| Whitby Twp.(Wylde-
wood Heights Housing
Development,Oshawa.... | 1 | | 4,758.50 | |
| Widdifield Twp..... | 6 | 82,129.85 | | |
| Winchester | 1 | | | 225,000.00 |
| Windsor | 2 | 190,837.72 | | |
| Woodbridge | 1 | 3,548.00 | | |
| Yarmouth Twp. | 1 | 1,775.00 | | |
| York Twp. | 5 | 77,690.00 | | |
| York East Twp. | 1 | 11,500.20 | | |
| York North Twp. | 42 | 2,916,566.38 | | |
| TOTAL | 566 | \$ 21,957,668.05 | \$2,249,117.02 | \$1,762,505.83 |

+ Preliminary approval only, included in total number of certificates, not included in total estimates.

CERTIFICATES ISSUED RE SEWAGE WORKS FOR THE YEAR 1957

| Municipality | No. of Certi-
ficates | Sewer
Extensions | Disposal | New
Systems |
|--|--------------------------|---------------------|----------|----------------|
| | | \$ | \$ | \$ |
| Acton(Beardmore
Company Ltd.) | 1 | | 4,960.00 | |
| Almonte | 3 | 40,822.20 | | |
| Atikokan Twp. | 1 | 95,965.22 | | |
| Aurora | 2 | 63,085.19 | | |
| Aurora(Caldwood Limited) | 1 | 13,036.84 | | |
| Aylmer | 1 | 36,605.00 | | |
| Bancroft | 2 | | | 137,040.00 |
| Barrie | 9 | 48,091.56 | | |
| Blind River | 2 | 18,629.90 | | |
| Belle River | 1 | 2,004.00 | | |
| Bolton | 3 | 22,310.00 | | |
| Brampton | 1 | | | 560,300.00 |
| +Brampton | 1 | | | +1,040,300.00 |
| Brantford | 6 | 356,905.23 | | |
| +Brighton | 1 | | | +565,380.00 |
| Brockville | 3 | 697,707.57 | | |
| Bronte | 2 | 42,463.15 | | |
| Burlington | 1 | 38,850.00 | | |
| Capreol | 2 | 37,378.32 | | |
| Cardiff I.D. | 1 | 14,200.00 | | |
| Carleton Place | 2 | 38,275.70 | | |
| Chelmsford | 1 | | | 256,824.70 |
| Chippawa | 3 | 50,424.00 | | |
| Cobden | 1 | 19,489.80 | | |
| Cobourg | 2 | 59,624.20 | | |
| Collingwood | 1 | 29,500.00 | | |
| +Collingwood | 1 | | | +450,000.00 |
| Coniston | 1 | | | 450,932.00 |
| Cornwall | 12 | 238,303.22 | | |
| Crowland Twp. | 3 | 419,333.93 | | |
| Deep River | 3 | 41,594.80 | | |
| Delhi | 1 | 16,054.75 | | |
| Dryden | 2 | 65,291.35 | | |
| Dundas | 2 | 12,564.66 | | |
| Dundas(Feiden
Construction Company) | 1 | 12,225.50 | | |
| Dunnville | 2 | 122,924.57 | | |

Sewage Works Approvals(cont'd)

| Municipality | No. of Certi-
ficates | Sewer
Extensions | Disposal | New
Systems |
|---|--------------------------|---------------------|--------------|----------------|
| Eastview | 1 | 11,354.47 | | |
| Elliot Lake I.D. | 7 | 1,637,278.16 | 470,000.00 | |
| Elliot Lake(Stanleigh
Uranium Mining Corp.) | 1 | 15,489.05 | | |
| Elliot Lake(Lake Nordic
Uranium Mine)..... | 1 | | 17,800.00 | |
| Elliot Lake(Spanish
American Uranium
Mines Ltd.)..... | 1 | | 20,400.00 | |
| Etobicoke Twp. | 65 | 2,772,140.64 | | |
| Fergus | 2 | 29,100.00 | | |
| Forest Hill Village | 1 | 12,500.00 | | |
| Fort William | 3 | 224,004.00 | | |
| Frankford | 1 | | | 162,000.00 |
| Galt | 4 | 20,725.50 | | |
| Gananoque | 1 | 5,900.00 | | |
| Georgetown | 4 | 50,300.00 | | |
| Georgetown | 1 | | +830,000.00 | |
| Grantham Twp. | 1 | 1,038,422.80 | | |
| Grimsby(Peninsula
Lumber & Supplies
Ltd.)..... | 1 | 4,250.00 | | |
| Guelph | 5 | 78,277.40 | 1,392,600.00 | |
| Hamilton | 23 | 733,082.00 | | |
| Hamilton(R. F. Banting
Construction Co.).... | 1 | 32,900.00 | | |
| Hamilton(Cochren Con-
struction Co.Ltd.)... | 1 | 8,700.00 | | |
| Hamilton(J.Earle Smith
Construction Co.).... | 1 | 9,400.00 | | |
| Harwich Twp. | 1 | 119,800.00 | | |
| Hawkesbury | 2 | 29,509.00 | | |
| Hespeler | 3 | 28,090.99 | | |
| Ingersoll | 1 | 93,200.00 | | |
| Kapuskasing | 1 | 13,750.00 | | |
| Kemptville | 2 | 7,300.00 | | |
| Kingston | 14 | 2,703,066.46 | | |
| Kitchener | 11 | 594,496.70 | | |
| Korah Twp. | 1 | 43,000.00 | | |

Sewage Works Approvals(cont'd)

| Municipality | No. of Certi-
ficates | Sewer
Extensions | Disposal | New
Systems |
|---|--------------------------|---------------------|--------------|----------------|
| Beamington | 4 | 16,539.00 | | |
| Bevack | 1 | | 21,660.00 | |
| Bindsay | 3 | 50,024.00 | | |
| Boston | 7 | 427,864.58 | | |
| Boston Twp. | 9 | 441,934.58 | 719,367.00 | |
| Boston Twp. (Ross C.
Fuller)..... | 1 | 11,759.00 | | |
| Boston Branch | 3 | 249,500.42 | | |
| Brantford I.D. | 2 | 120,070.00 | 212,950.00 | |
| Brantford I.D. | 1 | 45,000.00 | | |
| Brantford | 2 | 18,105.00 | | 468,484.00 |
| Brantford Twp. | 1 | 47,000.00 | | |
| Brantford | 1 | 12,457.00 | | |
| Brantford I.D. | 1 | 6,841.00 | | |
| Brimley | 1 | 37,755.66 | | |
| Brimley (Gilligan
Realty Ltd. & Grantham
Land Development Ltd.) | 1 | 16,000.00 | | |
| Brimley | 1 | | 160,000.00 | |
| Brimley | 1 | 442.65 | | |
| Brimley Twp. | 2 | 106,140.00 | | |
| Brimley Twp. | 1 | 7,312.98 | | |
| Brimley | 1 | 8,900.00 | | |
| Brimley Twp. (Messrs.
Dyeck & Andres)..... | 1 | 22,000.00 | | |
| Brimley | 2 | 2,797.20 | 2,042,000.00 | |
| Brimley | 2 | 93,179.95 | | |
| Brimley | 2 | 21,910.00 | | |
| Brimley | 6 | 252,574.07 | | |
| Brimley | 11 | 520,988.30 | | |
| Brimley (Reid & Hann
Construction Company) | 1 | 34,705.90 | | |
| Brimley | 66 | 3,233,280.82 | | |
| Brimley | 6 | 41,116.72 | | |
| Brimley | 5 | 208,929.18 | | |
| Brimley | 1 | 22,000.00 | | |
| Brimley | 9 | 1,179,453.25 | | |
| Brimley | 1 | 2,280.42 | | |
| Brimley | 1 | 18,310.00 | | |
| Brimley Twp. | 4 | 1,603,720.00 | 769,498.00 | |
| Brimley | 7 | 155,188.24 | | |
| Brimley | 3 | 170,714.00 | | |
| Brimley | 5 | 94,304.44 | | |
| Brimley | | | | |

Wage Works Approvals(cont'd)

| Municipality | No. of Certificates | Sewer Extensions | Disposal | New Systems |
|--|---------------------|------------------|--------------|--------------|
| Infrew | 6 | 124,956.74 | | |
| Richmond Hill | 3 | 82,252.00 | 350,000.00 | |
| Richmond Hill(Mr. S. Barbara; 1757 Eglinton Ave. W., Toronto)..... | 1 | 2,325.00 | | |
| Richmond Hill(J. A. Bailey Ltd.)..... | 1 | 39,208.56 | | |
| Midgetown | 1 | 13,300.00 | | |
| Riverside | 6 | 197,024.00 | | |
| St. Catharines | 3 | 50,205.00 | | |
| St. Catharines(Gilligan Realty Ltd. see Merritton) | | | | |
| St. Clair Beach | 4 | 63,627.00 | | |
| St. Thomas | 1 | 18,050.00 | | |
| Sandwich East Twp. | 1 | 165,499.00 | | |
| Sandwich West Twp. | 7 | 158,926.00 | | |
| Sarnia | 11 | 955,250.40 | 50,000.00 | |
| Sarnia(Imperial Oil Company)..... | 1 | | 1,585,000.00 | |
| Sault Ste. Marie | 1 | 67,094.00 | | |
| Scarborough Twp. | 60 | 6,499,072.96 | | |
| Simcoe | 2 | 158,926.00 | | |
| Smiths Falls | 2 | 41,959.00 | | |
| Stamford Twp. | 4 | 138,514.05 | | 355,000.00 |
| Stirling | 1 | | | |
| Stoney Creek | 2 | 9,598.90 | | |
| Stouffville(Crown Development Company)... | 1 | 13,100.00 | | |
| Stratford | 3 | 914,840.95 | | |
| Strathroy | 1 | 929.69 | | |
| Streetsville | 3 | 27,000.00 | 336,000.00 | |
| Sturgeon Falls | 4 | 38,850.00 | | |
| Sudbury | 3 | 416,159.40 | | |
| Teck Twp. | 2 | 15,550.00 | | |
| Tecumseh | 1 | 14,989.20 | | |
| Thorold | 4 | 46,528.60 | | |
| Thorold Twp. | 2 | 115,629.00 | | |
| Thurlow Twp. | 4 | 47,400.00 | | +535,830.00 |
| Tillsonburg | 1 | 6,000.00 | | |
| Timmins | 1 | 526,022.04 | | |
| Toronto | 17 | 325,000.00 | 50,000.00 | |
| Toronto Metro | 2 | 1,250,796.53 | 666,700.00 | 1,738,000.00 |
| Toronto Twp. | 18 | 136,673.48 | | |
| Trafalgar Twp. | 4 | 55,669.20 | | |
| Trenton | 7 | 1,850.00 | | |
| Tweed | 1 | | | |

Sewage Works Approvals (cont'd)

| Municipality | No. of Certi-
ficates | Sewer
Extensions | Disposal | New
Systems |
|--|--------------------------|---------------------|----------------|----------------|
| Wallaceburg | 3 | 150,530.00 | | |
| Waterloo | 7 | 123,070.00 | | |
| Waterloo Twp. | 1 | 7,280.00 | | |
| Welland | 1 | 42,200.00 | | |
| Westminster Twp. | 2 | 174,593.32 | | |
| Whitby | 2 | 145,787.40 | | |
| Whitby (L. J. Walton
Ltd. & D.T. Donovan
Ltd., Toronto)..... | 1 | 13,051.50 | | |
| Whitby (McCullough Con-
struction Co. Oshawa)... | 1 | 41,194.98 | | |
| Windsor | 1 | 1,000,000.00 | | |
| Woodstock | 3 | 146,429.40 | | |
| York Twp. | 4 | 274,808.00 | | |
| York East Twp. | 1 | 18,000.00 | | |
| York North Twp. | 88 | 10,601,900.21 | 140,000.00 | |
| TOTAL | 733 | \$ 47,748,817.70 | \$9,008,935.00 | \$4,128,580.70 |

* Preliminary approval only, included in total number of certificates,
not included in total estimates.

APPENDIX II

WATER AND SEWAGE PROJECTS - 1957

WATER

| <u>No.</u> | <u>Municipality</u> | <u>Project</u> | <u>Estimated Cost</u> |
|------------|------------------------------------|----------------------|-----------------------|
| 57-W-1 | Markham Tp. | Wells and Mains | \$458,700 |
| 57-W-3 | Bancroft | Water Works System | \$246,300 |
| 57-W-4 | Harrow | Water Works System | \$510,600 |
| 57-W-5 | Havelock | Water Works System | \$184,600 |
| 57-W-6 | Port Perry | Well and Supply Main | \$ 62,731 |
| 57-W-7 | Dresden | Supply Works | \$167,500 |
| 57-W-8 | Brock Tp.
(Sunderland) | Water Works System | \$ 97,300 |
| 57-W-9 | Winchester | Water Works System | \$225,000 |
| 57-W-11 | Richmond Hill | Water Mains and Tank | \$224,000 |
| 57-W-12 | Essex County
(6 municipalities) | Supply Works | \$3,146,000 |
| 57-W-13 | Essex Town | Standpipe | \$106,000 |
| Total | | | \$5,428,731 |

SEWAGE

| | | | |
|-------------|---------------|--|---------------------------|
| 57-S-1 | Toronto Tp | Trunk sewers and
Sewage Treatment Plant | \$1,752,800 |
| 57-S-2 | Stratford | Sewage Treatment | 888,600 |
| 57-S-4 | Trenton | Trunk Sewers and
Treatment | 434,000 |
| 57-S-5 | Streetsville | Sewage Treatment | 336,000 |
| 57-S-6 | Richmond Hill | Extension to existing
Sewage Treatment | 354,400 |
| Total | | | \$3,765,800 |
| Grand Total | | | ... <u>\$9,194,531.00</u> |

ORGANIZATION CHART

ONTARIO WATER RESOURCES COMMISSION



